WHAT IS CLAIMED IS:

1. An ultrasonic diagnostic apparatus for obtaining volume data made of voxel values for voxels forming a three-dimensional space by transmitting and receiving ultrasound to and from the three-dimensional space containing a target tissue and for applying a data process with respect to the volume data, the ultrasonic diagnostic apparatus comprising:

a basis axis setter for setting a basis axis in the target tissue based on a characteristic of the target tissue;

a reference cross section setter for setting, with respect to the target tissue, a plurality of reference cross sections which intersect each other with the basis axis as a reference;

a basis cross section selector for selecting a basis cross section from among the plurality of reference cross sections based on a cross sectional characteristic of the target tissue in each of the reference cross sections; and

a cross sectional image former for forming a cross sectional image of the target tissue, the cross sectional image corresponding to one of cross sections set with the basis cross section as a reference and the basis cross section.

2. The ultrasonic diagnostic apparatus according to Claim 1, wherein

the basis axis setter sets the basis axis based on two characteristic points of the target tissue.

3. The ultrasonic diagnostic apparatus according to Claim 1, wherein

the basis axis setter sets the basis axis based on a center of mass of the target tissue and one characteristic point of the target tissue other than the center of mass.

4. The ultrasonic diagnostic apparatus according to Claim 1, wherein

the basis axis setter sets the basis axis based on the center of mass of the target tissue and an end, in the target tissue, which is furthest away from the center of mass.

5. The ultrasonic diagnostic apparatus according to Claim 1, wherein

the reference cross section setter sequentially rotates a specific plane containing the basis axis by a predetermined angle with the basis axis as an axis of rotation to set the planes formed in each rotational angle position as the plurality of reference cross sections.

6. The ultrasonic diagnostic apparatus according to Claim 1, wherein

the basis cross section selector calculates an area of a cross section of the target tissue in each reference cross section and selects, as the basis cross section, a reference cross section having a maximum cross sectional area or a minimum cross sectional area.

7. The ultrasonic diagnostic apparatus according to Claim 1, wherein

the basis cross section selector calculates a peripheral length of the target tissue in each reference cross section and selects, as the basis cross section, a reference cross section in which a longest peripheral length or a shortest peripheral length can be obtained.

8. An ultrasonic diagnostic apparatus for obtaining volume data made of voxel values for voxels forming a transmission space by transmitting and receiving ultrasound to or from a heart having four cavities including a left ventricle cavity and for applying a data process to the volume data, the ultrasonic diagnostic apparatus comprising:

a major axis setter for setting a left ventricle major axis based on the shape of the left ventricle cavity;

a reference cross section setter for setting a plurality of reference cross sections each having a different rotational angle from each other, with the left ventricle major axis as an axis of rotation;

a basis cross section selector for selecting a basis cross section from among the plurality of reference cross sections based on a size of a cross section of the four cavities in each of the reference cross sections; and

a cross sectional image former for forming a cross sectional image corresponding to at least one of a four-cavity cross section, a two-cavity cross section, and a minor-axis cross section, all

of which relate to the heart, based on the basis cross section.

9. The ultrasonic diagnostic apparatus according to Claim 8, further comprising:

a binarization section for separating the voxels into cavity tissue voxels and real tissue voxels to create binarized volume data;

a cavity group extractor for extracting a plurality of cavity groups each made of a plurality of cavity tissue voxels based on the binarized volume data; and

a left ventricle cavity selector for selecting a left ventricle cavity group corresponding to the left ventricle cavity from among the plurality of cavity groups, wherein

the major axis setter judges the shape of the left ventricle cavity based on the left ventricle cavity group.

10. An ultrasonic diagnostic equipment according to Claim 8, wherein

the basis cross section selector calculates a cross sectional area of the four cavities in each of the reference cross sections and selects, as the basis cross section, a reference cross section in which a maximum cross sectional area can be obtained, and

the cross sectional image former sets the basis cross section as the four-cavity cross section.

11. The ultrasonic diagnostic device according to Claim 10, wherein

the two-cavity cross section is a cross section which is

orthogonal to the basis cross section and which contains the left ventricle major axis.

12. The ultrasonic diagnostic apparatus according to Claim 10, wherein

the minor-axis cross section is a cross section which is orthogonal to the left ventricle major axis and which contains a center of mass of the left ventricle cavity.

13. The ultrasonic diagnostic apparatus according to Claim 8, further comprising:

a three-dimensional image former for forming a three-dimensional image in which at least one cursor indicating at least one of the positions of the four-cavity cross section, the two-cavity cross section, and the minor-axis cross section is displayed on a stereographical image of the heart obtained based on the volume data.

14. An ultrasonic diagnostic apparatus for obtaining, from an ultrasonic probe for transmitting and receiving ultrasound to and from a transmission space containing a heart, volume data made of voxel values of voxels forming the transmission space, and for applying a data process to the volume data, the ultrasonic diagnostic apparatus comprising:

a major axis setter for setting a left ventricle major axis based on a shape of a left ventricle cavity of the heart;

a reference cross section setter for setting a plurality of

reference cross sections each having a different rotational angle, with the left ventricle major axis as an axis of rotation;

a basis cross section selector for selecting a basis cross section from among the plurality of reference cross sections based on a size of a cross section of the four cavities in each of the reference cross sections; and

a cross sectional image data former for forming, based on the basis cross section, image data of a cross sectional image corresponding to at least one of a four-cavity cross section, a two-cavity cross section, and a minor-axis cross section regarding the heart.

15. The ultrasonic diagnostic apparatus according to Claim 14, further comprising:

a binarization section for separating the voxels into cavity tissue voxels and real tissue voxels to create binarized volume data;

a cavity group extractor for extracting, based on the binarized volume data, a plurality of cavity groups each made of a plurality of cavity tissue voxels; and

a left ventricle cavity selector for selecting a left ventricle cavity group corresponding to the left ventricle cavity from among the plurality of cavity groups, wherein

the major axis setter judges a shape of the left ventricle cavity based on the left ventricle cavity group.

16. The ultrasonic diagnostic apparatus according to Claim 15,

wherein

the basis cross section selector calculates a cross sectional area of the four cavities in each of the reference cross sections and selects, as the basis cross section, a reference cross section in which a maximum cross sectional area can be obtained, and

the cross sectional image former sets the basis cross section as the four-cavity cross section.

17. The ultrasonic diagnostic apparatus according to Claim 16, wherein

the two-cavity cross section is a cross section which is orthogonal to the basis cross section and which contains the left ventricle major axis.

18. The ultrasonic diagnostic apparatus according to Claim 17, wherein

the minor-axis cross section is a cross section which is orthogonal to the left ventricle major axis and contains a center of mass of the left ventricle cavity.

19. The ultrasonic diagnostic apparatus according to Claim 18, further comprising:

a three-dimensional image data former for forming image data of a three-dimensional image in which at least one cursor indicating at least one of the positions of the four-cavity cross section, the two-cavity cross section, and the minor-axis cross section is displayed on a stereographical image of the heart obtained based

on the volume data.